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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/840,054	04/24/2001	Robert Wilhelm Schumann	1005-7U	3693
23975	7590	11/15/2004		
DAVID G GROSSMAN 1408 BAYSHIRE LANE HERNDON, VA 20170			EXAMINER JOHNS, ANDREW W	
			ART UNIT 2621	PAPER NUMBER 8
DATE MAILED: 11/15/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/840,054

Applicant(s)

SCHUMANN ET AL.

Examiner

Andrew W. Johns

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,8-13,16,19-33,35,36,38-40 and 44 is/are rejected.
- 7) ☒ Claim(s) 2,7,14,15,17,18,34,37,41-43,45 and 46 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 U.S.C. § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

5 A person shall be entitled to a patent unless –

10 (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

15 2. Claims 1 6, 8-12, 19-26, 28-33, 35-36, 38-40 and 44 are rejected under 35 U.S.C. § 102(e) as being anticipated by Epstein et al. (US 6,529,600 B1).

20 With respect to claim 1, Epstein et al. teaches a method for visual copyright protection (*column 1, lines 9-11*) comprising the steps of: (a) inputting light from a light source (*Epstein et al. shows a DMD type electronic projector 10, which must inherently include a light source in order to project an image*); (b) selecting a disruptive light modulating pattern based upon a criterion (*i.e., choosing a variation in frame, line, and/or pixel rate; column 4, lines 59-60; this variation in frame, line and/or pixel rate is a **temporal** pattern that disrupts the modulation of the light*), said criterion being how said pattern is perceived by an IRD and a human differently (*column 4, lines 60-65*); (c) modulating a light array, having at least one element, using said disruptive light modulating pattern (*Epstein et al. in Figures 2 and 3 shows the disruptive pattern being fed from frequency controller 16 to timing 14 and array 12, the array 12 (DMD) has at least one element (i.e., an array of elements) which modulate light based on the modulation control from timer 14*); (d) projecting said light onto said light array producing a modulated light beam (*this is inherent in any DMD projection display system, i.e., once the modulation control*

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has been set on each DMD mirror, light is projected on the display); and (e) outputting said modulated light beam (the device of Epstein et al then projects the modulated light beam as shown in the upper right corner of the projector 10 in Figures 2 and 3).

With respect to claim 25, Epstein et al. teaches an apparatus for visual copyright protection comprising: (a) a light source capable of producing light (*Epstein et al. shows a DMD type electronic projector 10, which must inherently include a light source in order to project an image*); (b) a light array, having at least one element, capable of acting on the light to produce a modulated beam (*Epstein et al. in Figures 2 and 3 shows the disruptive pattern being fed from frequency controller 16 to timing 14 and array 12, the array 12 (DMD) has at least one element (i.e., an array of elements) which modulate light based on the modulation control from timer 14*); (c) a light array controller for modulating said light array using at least one disruptive light pattern (*i.e., the frequency controller 16 which outputs the disruptive pattern and controls the array 12 (DMD)*); and (d) a disruption processor for producing said at least one disruptive light pattern based upon a criterion (*i.e., choosing a variation in frame, line, and/or pixel rate; column 4, lines 59-60; this variation in frame, line and/or pixel rate is a **temporal** pattern that disrupts the modulation of the light*), said criterion being how said pattern is perceived by an IRD and a human differently (*column 4, lines 60-65*).

In addition, Epstein et al. further teaches that the criterion further includes selecting said pattern for the purpose of creating disruption effects (*column 4, lines 23-26; the pattern causes distortion in a video camera imaging the video*), as stipulated in claim 6; projecting said modulated light beam onto a surface (*see column 2, lines 5-8; Epstein et al. is directed towards the protection of movies projected in a movie theater which inherently requires that the light beam be projected onto the surface of the screen in order for the audience to see the movie*), as

required by claim 8; said surface being an image bearing surface (*i.e., the movie screen bears the images of the movie, projected thereon*), as set forth in claim 9; that the light beam is focused near said surface (*the movie projector of Epstein et al. clearly must be focused at the screen surface to ensure that the audience can enjoy the movie*), as further defined in claim 10; that said surface is being utilized by a projector (*i.e., the screen is used by the projector to display the movie images*), as set forth in claim 11; and that said modulated light beam illuminate an area (*the movie projector illuminates the screen with the sequence of images that make up the movie*), as required by claim 12. The method of Epstein et al. also includes receiving an input image (*i.e., the video input to the projector 10 in Figure 3, which corresponds to the movie to be projected*), and combining said input image with said disruptive light modulating pattern (*column 4, lines 38-53; the frame rate of the projected sequence of images is varied according to the temporal disruption pattern, so that the image and the pattern are combined*), as further required by claim 22. Finally, Epstein et al. teaches that said disruptive light modulating pattern is a multitude of sequenced disruptive light modulating patterns (*i.e., the display rate is varied frequently in a non-predictive fashion; see column 4, lines 59-65; resulting in a continuous sequence of modulation patterns for the projected image data*), as variously stipulated in claims 19 and 23; that the disruptive light modulating patterns modulate at least one of said elements to generate a disruptive effect (*i.e., the mirrors of the array (DMD) are controlled (i.e., modulated based on the content of the projected image and the timing of the disruptive modulation pattern to generate the disruptive effect*), as variously required by claims 20 and 21; and that said criterion is based upon a dynamic analysis of source content (*column 4, lines 46-48; the adjustments to the frame rate are controlled based upon the dynamic content of the images—full motion images are adjusted differently than still images*), as set forth in claim 24.

The apparatus of Epstein et al. further includes input content (*i.e., the video input to the projector 10 in Figure 3, which corresponds to the movie to be projected*), as required by claim 26; said input content being digital data (*i.e., digital video or movies; column 1, lines 42-46*), as specified in claim 28. In addition, Epstein et al. also teaches that said disruption processor further includes disruption data (*such as the cryptographically secure algorithm described at column 3, lines 39-40*), as defined by claim 29; that said disruption processor operate on at least one image element, which can be a pixel (*i.e., modifying the pixel rate; column 4, lines 22-23*), a group of pixels (*i.e., modifying the line rate; column 4, lines 15-20; where a line is a group of pixels*), or an image frame (*i.e., modifying the frame rate; column 4, lines 10-11*), as variously required by claims 30-33; that said light array has a reflective characteristic (*i.e., a mirror array; column 3, lines 22-24*), as alternatively required by claim 35; and that said light array is an MEMS DMD array (*column 4, lines 20-21*), as alternatively set forth in claim 36. Finally, Epstein et al. teaches that said disruption processor introduces a disruption frequency content (*column 4, lines 45-53*), as set forth in claim 38, and includes a multitude of frequency components (*i.e., different frequencies are used to disrupt motion frames and still frames*), as required by claim 39; that said disruption processor generates a visible disruption effect (*i.e., visible distortion in the video camera; column 2, lines 53-54*), as alternatively required by claim 40; and that said disruption processor inserts new disruptive content (*i.e., the frequently variation of the frame, line or pixel rate*), as defined by claim 44.

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-5, 13, 16 and 27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Epstein et al. as applied to claims 1 6, 8-12, 19-26, 28-33, 35-36, 38-40 and 44 above, and further in view of Chaum (US 5,959,717 A).

While Epstein et al. meets a number of the limitations of the claimed invention, as pointed out more fully above, Epstein et al. fails to specifically teach that the disruptive modulating pattern serves to insert a watermark, as required by claims 3 and 37; that the pattern serve to insert either human perceivable or a non-human perceivable image, as variously defined by claims 4-5; that the disruptive light modulation patterns modulate each element differently, as set forth in claim 13; inputting the disruptive light modulation pattern from an external source, as stipulated by claim 16; or that the input is analog data, as required by claim 27.

Chaum teaches a method and apparatus for projecting a disruptive pattern that is perceived differently by an IRD and a human (*column 1, line 46 through column 2, line 5*), that includes a pattern than inserts a watermark (*i.e., date and location information that identifies the source of any illicit copies; column 7, line 65 through column 8, line 5; this information is not perceptible to a viewer of the projected movie and functions as a watermark for the projected images*), the pattern serving to insert human perceivable image data (*i.e., enhanced effects; column 9, lines 10-25*), and non-human perceivable image data (*column 6, lines 37-38*), wherein the pattern modulate different elements of the projector array differently (*Chaum teaches the use of LCD, light-valve or mirror devices; column 4, lines 24-25; which must be modulated differently by the pattern in order to produce the two dimensional patterns described as being*

projected). Chaum further teaches that the patterns are input from an external source (*column 4, lines 30-36*), and that the input can include analog data (*column 4, line 26*).

Because both Epstein et al. and Chaum are directed towards preventing or discouraging the illicit copying of projected movies or video sequences, and both further employ projected disruption to accomplish this objective, and because the projected patterns of Chaum provide for easy identification of the time and location of any illicit operation and are further useful for enhancing the projected movie, it would have been obvious to one of ordinary skill in the art to use the disruption patterns suggested by Chaum in the Epstein et al. projection method and apparatus.

Allowable Subject Matter

5. Claims 2, 7, 14-15, 17-18, 34, 37, 41-43 and 45-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

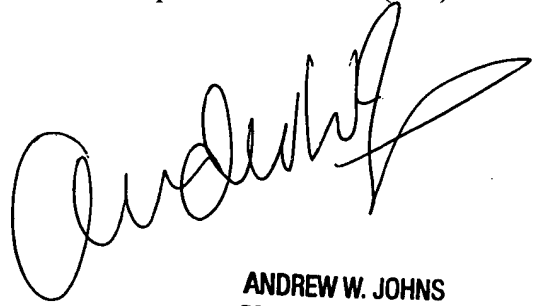
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Johns whose telephone number is (703) 305-4788. The examiner is normally available Monday through Friday, at least during the hours of 9:00 am to 3:00 pm Eastern Time. The examiner may also be contacted by e-mail using the address: andrew.johns@uspto.gov. (Applicant is reminded of the Office policy regarding e-mail communications. See M.P.E.P. § 502.03)

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached on (703) 305-4706. The fax phone number for this art unit is (703) 872-9306. In order to ensure prompt delivery to the examiner, all unofficial communications should be clearly labeled as "Draft" or "Unofficial."

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center Receptionist whose telephone number is (703) 305-4700.

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A. Johns

A handwritten signature in black ink, appearing to read 'Andrew W. Johns', with a large, stylized initial 'A'.

**ANDREW W. JOHNS
PRIMARY EXAMINER**